

discovered by them in June last (in company with Mr. James Backhouse and son and Mr. Sylvanus Thompson) near the top of the Weddy Bank Fell, about ten miles west of Middleton in Teesdale, and five from the High Force in Durham; the elevation was about 1800 feet. The locality was confined to a very small space.

Specimens of *Anemone ranunculoides* were presented by Mrs. M. Stovin, found *wild* in a wood near Worksop, Nottinghamshire. Specimens from this locality were presented in June last; and in a letter to the Secretary, Mrs. Stovin observes, "the more I see and hear of this plant in the Nottingham station, the more am I convinced of its being wild."

The concluding portion of Mr. Lees's elaborate paper on the British Fruticose species of *Rubus* was read, and several specimens and drawings exhibited in illustration of the views contained in the essay.

GEOLOGICAL SOCIETY.

Nov. 29, 1843.—Prof. Sedgwick concluded his memoir, "On the Geology of North Wales," read June 21, 1843.

The author maintains the threefold division of the older rocks. The middle division is now illustrated by more detailed sections, especially through different parts of the Berwyn chain. The first and principal section is from the porphyries of Arrenig across the Lake of Bala, and over the crest of the Berwyns to Llangynog. The whole of this section is placed in a fossiliferous system, and the thickness of the beds actually associated with fossils is several thousand feet. The difference between this result and one stated by Mr. Sharpe, is accounted for, first, by a different computation of the thickness of certain beds about the position of which there is no doubt, and, secondly, by a different interpretation of phenomena, Mr. Sharpe terminating his section abruptly against a supposed fault, while Professor Sedgwick makes a regular ascending section, and places in the highest part of the series certain beds which Mr. Sharpe calls *Cambrian*, and regards as a part of a lower and non-fossiliferous group. In short, Professor Sedgwick extends his section among the fossil groups several miles to the east of the supposed line of fault of Mr. Sharpe. Other sections are described, drawn through the southern part of the Berwyns, which is shown to rest on a great trough formed by the Bala limestone. The author then gives a general and detailed account of the physical structure of the whole Berwyn chain, which measured, on the curved line of the water-shed, is not less than thirty miles long. The whole crest of this chain, with the exception of about five miles, is composed of beds superior to the Bala limestone. The author then describes the sections on the east side of the Berwyns, and the section on the Ceiriog and the Dee, which connect the part of the protozoic group, which is the exact equivalent of the Caradoc sandstone, with the Denbigh flagstone, which represents the upper Silurian rocks of Mr. Murchison. After discussing the sections in detail he draws the following conclusions:—

1. The base of the fossiliferous system is unknown, for beds (occa-

sionally alternating with contemporaneous porphyries) of great thickness occasionally present fossil bands with *Asaphus Buchii*, &c. These are below the level of the limestone seen in the Arrenig section. 2. That the limestones near Bala (three of which are on the line of section, and one at a still lower level) contain fossils which point to a lower level than the Caradoc sandstone, and rather conform, especially in the lower beds, to the character of the Llandeilo flagstone. 3. That the higher part of the section on the Ceiriog conforms to the best types of the Caradoc sandstone, and passes into the system of the Denbigh flags. 4. That the lower Silurian beds in Westmoreland do not conform to the above type: they may be compared with the upper part of the Ceiriog section, and perhaps with the *highest* part of the Arrenig section; but they admit of no comparison with the lower and by far the thicker part of the protozoic group of North Wales. Lastly, the author, as in a former paper, divides the upper Silurian rocks of Denbighshire, &c. into three primary divisions or groups. The complicated Llangollen sections he puts entirely in the lowest of the three divisions. He confirms his former views by some new details and general remarks, accompanied by lists of fossils.

Dec. 13, 1843.—The following papers were read:—

1. “Notes respecting the Coal Measures, Limestone, and Gypsiferous Strata of the Island of Cape Breton.” By Mr. R. Brown.

The author gives the details of certain sections in the coal-fields of Cape Breton, confirmatory of Mr. Lyell’s views of the relative age of the gypsum and other strata in that island.

2. “On the lower Carboniferous Rocks or Gypsiferous Formation of Nova Scotia.” By Mr. J. W. Dawson of Pictou, Nova Scotia.

The coal formation of the eastern part of Nova Scotia consists of a great thickness of sandstones, shales and conglomerates of various reddish and gray colours. The lower part of the series is distinguished by the presence of limestones with marine shells and gypsum. In this paper the author examines the structure and relations of the lower or gypsiferous formation, prefacing it with a notice of the general disposition of the rocks of the carboniferous system in the region extending along the shores of the Gulf of St. Lawrence, from Tatmagouche to Antigonish Harbour. The gypsiferous formation is described as met with at East River, Merigonish, Antigonish, and Shubenacardie. The results of Mr. Dawson’s inquiries confirm the views advanced by Mr. Lyell in his papers on the geology of Nova Scotia.

3. “On Concretions in the Red Crag at Felixstow, Suffolk.” By the Rev. Prof. Henslow.

The concretions described are more or less spheroidal, fusiform and cylindrical, many of them amorphous masses of a fine-grained, compact, dark brown ferruginous claystone. Their surfaces are smooth, often polished, and they sometimes include organic remains. Prof. Henslow regards them as of coprolitic origin. Resembling them are certain silicified masses, which prove to be the petro-tympanic bones of extinct Cetacea; and Prof. Owen has determined that

Prof. Henslow's specimens belonged to no less than four distinct species of whales of the genus *Balæna*.

Jan. 3, 1844.—The following papers were read:—

1. "On the occurrence of the genus *Physeter* (or sperm whale) in the Red Crag of Felixstow." By Mr. Charlesworth.

In the collection of Mr. Brown of Stanway, is a remarkable fossil, which Prof. Owen proved, to be the tooth of a cachalot, and in the Report of the British Association for 1842 states to have been procured from the diluvium of Essex. Mr. Charlesworth, having examined the specimen in question, considers it a genuine crag fossil from the same deposit with the Cetacean remains, described by Prof. Henslow at a previous meeting, as just noticed.

2. "On a Fossil Forest in the Parkfield Colliery, near Wolverhampton." By Mr. H. Beckett.

The author announces the discovery of a remarkable assemblage of stumps of fossil trees in the Parkfield Colliery, all upright and evidently *in situ*. There are two fossil forests, one above the other. In the upper, Mr. Beckett counted seventy-three trees in about a quarter of an acre, and in the lower they appear to be equally numerous.

3. "On the Remains of fossil dicotyledonous trees in an outcrop of the Bolton coal, at Parkfield Colliery." By W. Ick, Ph.D.

This paper relates to the same locality with the last, and includes numerous details of the state of the fossil forest, its geological relations and accompanying fossils. Dr. Ick describes three distinct beds of coal, each exhibiting on its surface the remains of a forest, all included in an assemblage of strata not more than twelve feet in thickness. He considers the trees to have been mostly coniferous, and concludes that they grew on the spot where they are now found.

4. "On a fossil tree found in the coal-grit, near Darlaston, South Staffordshire." By Mr. J. S. Dawes.

This remarkable fossil, although not entire, is thirty-nine feet in length, and its greatest breadth not more than twenty inches. The wood is coniferous.

5. "On the Trap-rock of Bleadon Hill, in Somersetshire." By the Rev. D. Williams.

In consequence of some remarkable facts disclosed by the railway cutting through the western point of Bleadon Hill, the author's views respecting the origin of trap and other aggregate rocks, advanced in former papers, have undergone a material change. In this paper he details the phænomena which lead him, among other conclusions, to maintain that the lime rocks, in the cases under consideration, have been reduced *in situ* by tranquil fusion, and subsequently converted into the trap which now replaces them. The extent and variety of the subjects embraced in this memoir do not admit of a short notice.

Jan. 17.—The following papers were read:—

1. "On Fossil Crustaceans from Atherfield, in the Isle of Wight." By Prof. Bell.

The fossils described in this paper were preserved in the lower

greensand, and belong to the family of *Astacidae*, probably to the genus *Astacus*. They are distinct from any known recent or fossil species.

2. "On the occurrence of Phosphorite in Estremadura." By Prof. Daubeny and Capt. Widdrington.

The phosphorite rock, the extent of which had been greatly exaggerated by Spanish writers, is situated at a short distance from Logrosan, a village of Estremadura. It lies in an extensive clay slate formation, and is interstratified with the slate, appearing on the surface for about two miles, presenting a breadth of usually about twenty feet, and a thickness as far as could be ascertained of ten. Its presence does not appear to communicate fertility to the soil. It is composed of phosphate of lime, associated with fluoride of calcium, oxide of iron and silica. The authors examined it with a view to its employment as a manure; but great difficulties exist with respect to its transportation.

3. "On the Cretaceous Strata of New Jersey, and other parts of the United States." By Mr. Lyell.

The author proves, from a careful examination of their fossils, that the ferruginous and greensand formation of New Jersey corresponds to the uppermost part of the cretaceous system in Europe. Four or five, out of sixty fossil shells, are identical with European species, giving an agreement of 7 per cent., whilst a great number of the remainder are nearly allied to and represent species from the middle and upper part of the European cretaceous beds. Teeth of sharks, some of them allied to known cretaceous forms, and vertebræ of *Mososaurus* and *Plesiosaurus* accompany them. The upper fossiliferous division of the New Jersey cretaceous deposit, observed by Mr. Lyell at Timber Creek, near Philadelphia, judging from the evidence afforded by certain of its fossils, of which, however, the great part, especially of the corals, are new, must be regarded as equivalent to the uppermost (Maestricht) part of the cretaceous system. Among the Echinodermata and Foraminifera are several characteristic cretaceous forms.

Jan. 31.—The following papers were read:—

1. "A Vertical Section of the Strata between the Chalk and the Wealden on the South-east Coast of the Isle of Wight." By Mr. Simms.

The thickness of the upper greensand given in this section is 104 feet, that of the gault 146 feet, and that of the lower greensand 754 feet 3 inches; giving a total thickness of the beds beneath the chalk of 1004 feet 3 inches.

2. "A Report on the British Lower Greensand Fossils in the Society's Collection." By the Curator, Prof. E. Forbes.

There are 131 species of Mollusca, and between 30 and 40 Radiata and Annelida in the Society's cabinets. Of the Mollusca, 60 are additions to the British greensand fauna, mostly discovered within the last twelve months. Half of this number are new species; and among the rest are many characteristic Neocomian forms.

3. "A Report on the Collections of Fossils from Southern India,

presented to the Society by Mr. Kaye and the Rev. Mr. Egerton." By the Curator.

The species from the beds discovered by Mr. Kaye at Pondicherry are, with a few exceptions, new. Among those from Verdachellum and Trinconopoly, are several well-known greensand fossils. The Pondicherry beds appear, from the evidence afforded by their organic contents, to belong to the lowest part of the lower greensand; whilst those at Verdachellum and Trinconopoly may be referred to the upper greensand. In this Report 156 new species of Mollusca are described and named.

4. "On the European Equivalents of the Permian System, with a General View and Table of its Organic Contents." By Mr. Murchison and M. de Verneuil.

The chief objects of this paper are,—1st, to sustain Mr. Murchison's original opinion, that the rothe-todte-liegende forms the true base of the Permian system; 2ndly, to point out the equivalents in Western Europe of the Russian series of this age, and to extend the upper palæozoic rocks, so as to embrace the lower part of the bunter sandstein; 3rdly, to analyse the flora and fauna, showing, that whilst connected downwards with the carboniferous rocks, they were entirely dissimilar from those of the overlying trias; and, lastly, to vindicate the use of the collective word *Permian*, and its application to a recently published map of England, as derived from a group of strata never previously united through their geological relations and organic remains.

Feb. 21.—The following papers were read:—

1. "Some account of the Strata observed in the course of the Blechingly Tunnel, Surrey, in the year 1841." By Mr. Simms.

The tunnel was carried through a spur of a range of hills, formed by the escarpment of the lower greensand. In the line of the cutting, the spur consisted chiefly of Weald clay, and proved to form part of an anticlinal axis, which extends across the Weald from the chalk of the North Downs in Surrey, between Merstham and Garlstone, to the chalk of the South Downs in Sussex, near Ditchling.

2. "Some Remarks on the White Limestone of Corfu and Vido." By Captain Portlock, R.E.

The author has found fossils in the limestone of Vido. They are very locally distributed, Ammonites in one place, and Terebratulæ in another; the former in bad condition, the latter very perfect. They appear to be nearly allied to *Terebratula Pala* and *T. resupinata*, oolitic species, and to a species from Dundry. Captain Portlock regards them as new, and names the species *T. Seatonii*; inferring, from their presence, that the limestone in question is probably oolitic.

MISCELLANEOUS.

The genus Chiton found in the Magnesian Limestone of Durham.

A LATE field-day among the magnesian limestone beds of the neighbourhood of Sunderland has yielded me nearly all the plates of a